Message

From: Fry, Jessica [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B8BD79D43F5A4AD1AE1A2F5FC5686D9B-FRY, JESSICA]
Sent: 6/29/2020 5:21:54 PM
To: chow, alice [chow.alice@epa.gov]
Subject: FW: [External] RE: EtO Air Modeling data
Attachments: Braun 2017_ATSDR.kmz; Braun Modeled Concentration 2017.xlsx

Hi Alice,

I had sent concentration data to Lora Werner a while back for the B. Braun HEM modeling we did for EtO. She has been working with PADOH doing EtO work and passed the modeling on to them. Sasi, at PADOH would like me to create a map with the concentration results, similar to the HEM output for the risk. I can make a map for her, but just wanted to check with you to make sure it was ok. If you want more details about her request, you can see the email chain below.

Thanks,
Jessie

From: Arunachalam, Sasidevi <sarunachal@pa.gov>
Sent: Monday, June 29, 2020 9:17 AM
To: Fry, Jessica <fry.jessica@epa.gov>
Subject: RE: [External] RE: EtO Air Modeling data

Hi Jessica,
Well and wish you the same.
Is it possible to add the latitude, longitude and EtO concentration in a map similar to kmz file attached? And, is it one time detected value in 2017 at each location near B. Braun? It would be very helpful, if you could provide more details on how EPA conducted the air modeling for the year 2017. I tried my best to collect those information from EPA website, but not successful.
Thank you
Sasi

From: Fry, Jessica <fry.jessica@epa.gov>
Sent: Friday, February 28, 2020 8:37 AM
To: Arunachalam, Sasidevi <sarunachal@pa.gov>
Subject: RE: [External] RE: EtO Air Modeling data

Hi Sasi,

The concentrations are in ug/m3. I'm sorry, I didn't realize that the units weren't on the spreadsheet.

Let me know if you have any other questions.

Thanks,
Jessie

From: Arunachalam, Sasidevi <sarunachal@pa.gov>
Sent: Thursday, February 27, 2020 3:46 PM
To: Fry, Jessica <fry.jessica@epa.gov>
Subject: RE: [External] RE: EtO Air Modeling data

Hi Jessica,

Thank you for sending the modeling data. Can I know the units in which they were measured?

From: Fry, Jessica <fry.jessica@epa.gov>
Sent: Thursday, February 13, 2020 10:51 AM
To: Werner, Lora S. (ATSDR/DCHI/EB) <lkw9@cdc.gov>
Cc: Nair, Anil <annair@pa.gov>; Ma, Zhen-qiang <zma@pa.gov>; McCaskill, Michael <mmccaskill@pa.gov>; Sivarajah, Kandiah <KSIVARAJAH@pa.gov>; Helverson, Robert (ATSDR/DCHI/EB) <gfu6@cdc.gov>; Arunachalam, Sasidevi <sarunachal@pa.gov>
Subject: RE: [External] RE: EtO Air Modeling data

Hi Lora,

Here is the concentration file for the 2017 HEM Modeling for Braun. When HEM runs AERMOD, it outputs a plotfile with the concentrations and I've just put that into an excel worksheet.

Let me know if this helps or if you have any other questions.

Thanks,
Jessie

From: Werner, Lora S. (ATSDR/DCHI/EB) <lkw9@cdc.gov>
Sent: Wednesday, February 12, 2020 8:21 AM
To: Fry, Jessica <fry.jessica@epa.gov>
Cc: Nair, Anil <annair@pa.gov>; Ma, Marshall (CDC pa.gov) <zma@pa.gov>; McCaskill, Michael <mmccaskill@pa.gov>; Sivarajah, Kandiah <KSIVARAJAH@pa.gov>; Helverson, Robert (ATSDR/DCHI/EB) <gfu6@cdc.gov>; Arunachalam, Sasi (CDC pa.gov) <sarunachal@PA.GOV>
Subject: Re: [External] RE: EtO Air Modeling data

Hi Jessica

Sasi at PADOH is working with the HEM modeling results you shared for Braun. Thank you very much!

As you can see from the email string below, Sasi is interested in the modeled air concentrations in addition to the modeled cancer risk output you shared. Is that something you could help us understand how to find?

We really appreciate the help. If easier to talk just let us know.

Best Lora

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From: Arunachalam, Sasidevi <sarunachal@PA.GOV>
Sent: Monday, February 3, 2020 9:50 AM
To: Werner, Lora S. (ATSDR/DCHI/EB); Helverson, Robert (ATSDR/DCHI/EB)
Cc: Nair, Anil; Ma, Marshall (CDC pa.gov); McCaskill, Michael; Sivarajah, Kandiah
Subject: RE: [External] RE: EtO Air Modeling data

Hi Lora and Bob ,
Thanks for your emails and thanks Lora for explaining the HEM values and sending us the link to the manual.

Also, as you have mentioned, we would like to know the predicted exposure EtO values from which they estimated the HEM values. So, please share us the exposure data that the model generated.

If possible, we would like have a call with you tomorrow based on everyone's availability.

Thank you,
Sasi

From: Werner, Lora S. (ATSDR/DCHI/EB) <lkw9@cdc.gov>
Sent: Friday, January 31, 2020 5:10 PM
To: Helverson, Robert (ATSDR/DCHI/EB) <gfu6@cdc.gov>; Arunachalam, Sasidevi <sarunachal@pa.gov>
Cc: Nair, Anil <annair@pa.gov>; Ma, Zhen-qiang <zma@pa.gov>; McCaskill, Michael <mmccaskill@pa.gov>; Sivarajah, Kandiah <KSIVARAJAH@pa.gov>
Subject: [External] RE: EtO Air Modeling data

Thanks Bob. These are modeling data from EPA R3/Jessica Fry.

Really glad you started working on this, Sasi! My understanding is that the HEM output is one in a million cancer risk. Per the EPA user manual (https://www.epa.gov/sites/production/files/2017-06/documents/hem_users_guide.pdf):

> "As previously noted, HEM-3 computes cancer risks using the EPA's recommended unit risk estimates (UREs) for HAP and other toxic air pollutants. The resulting estimates reflect the risk of developing cancer for an individual breathing the ambient air at a given receptor site over a 70-year lifetime. Noncancer health effects are quantified using hazard quotients (HQ) and hazard indices (HI) for various target organs. The HQ for a given chemical and receptor site is the ratio of the ambient concentration of the chemical to the reference concentration (RfC) level at which no adverse effects are expected. The HI for a given organ is the sum of HQs for substances that affect that organ.
>
> In the example shown in Figure 19, the maximum individual cancer risk or MIR for the modeled facility is 10 E-5 (or 100 in 1 million). That is, an individual's risk of developing cancer at the receptor site of maximum cancer risk impact is approximately 100 in 1 million. This is a conservative estimate, based on a resident being continually exposed to the ambient (outdoor) air over a 70-year lifetime, and is not adjusted with any attenuating exposure factors (such as daily movement out of the maximum receptor site for work and other reasons, indoor versus outdoor concentrations, the fact that people rarely live in one location for 70 years, etc.). None of the maximum target-organ specific hazard indices (TOSHIs) shown in Figure 19 is greater than 1, if using one significant figure precision. The developmental HI and the kidney HI shown in Figure 19 are 1.2 and 1.4, respectively, which both round to 1. Therefore, using a precision of one significant figure, these TOSHIs are below the level at which chronic noncancer adverse effects would be expected, as a result of lifetime exposure to the ambient air at each receptor site. Note that the receptor location of maximum impact for each health effect—cancer, respiratory HI, neurological HI, etc.—may not be the same."

Or are you asking about the exposure data the model generates? We can chat more about this next week.
Lora

From: Helverson, Robert (ATSDR/DCHI/EB) <gfu6@cdc.gov>
Sent: Friday, January 31, 2020 5:00 PM

To: Werner, Lora S. (ATSDR/DCHI/EB) <lkw9@cdc.gov>; Arunachalam, Sasi (CDC pa.gov) <sarunachal@PA.GOV>
Subject: Fwd: EtO Air Modeling data

Hi Sasi. I am assuming these data relate to the b Braun site? I don't really know anything about it. Perhaps Lora has more to share. If not, I will try to track down more from ATL staff. B
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From: Arunachalam, Sasidevi <sarunachal@pa.gov>
Sent: Friday, January 31, 2020 4:10 PM
To: Helverson, Robert (ATSDR/DCHI/EB); Werner, Lora S. (ATSDR/DCHI/EB)
Cc: Nair, Anil; Ma, Marshall (CDC pa.gov); Sivarajah, Kandiah; McCaskill, Michael
Subject: EtO Air Modeling data

Hi Bob,
I started looking at the air modeling data that PADOH received from ATSDR. Can I know the unit of (Human Exposure Model) HEM values? Based on EPA's website, I assume that the air modeling data (HEM) are measured in micro grams per cubic meter. If so, then the cancer risk estimates are very high even for the lowest detected value of 128 (4 out of 10). The highest concentration detected in 2017 was 2,731 – extremely high concentration of ethylene oxide was predicted near the source location. Please let me know the unit of HEM, if you have the chance of looking at those values.

Have a great weekend!

Thank you,

Sasi